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- 1 [A decomposition solution to the queueing network model of the centralized DBMS with static locking](#)

Alexander Thomasian, In Kyung Ryu

 August 1983 **Proceedings of the 1983 ACM SIGMETRICS conference on Measurement and modeling of computer systems**

 Full text available: [pdf\(938.62 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The effect of concurrency control methods on the performance of computer systems is analyzed in the context of a centralized database with a static lock request policy, i.e., database transactions should acquire all locks before their activation. In the lock conflict model the L locks required by each transaction are uniformly distributed over the N locks in the database. The computer system is modelled as a queueing network. Two scheduling policies for transaction activation are considered ...

- 2 [Incremental evaluation of computational circuits](#)

 Bowen Alpern, Roger Hoover, Barry K. Rosen, Peter F. Sweeney, F. Kenneth Zadeck
 January 1990 **Proceedings of the first annual ACM-SIAM symposium on Discrete algorithms**

 Full text available: [pdf\(1.42 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

- 3 [Modeling and simulation of mixed traffic on a prioritized shared medium](#)

Jeffrey J. Evans, Cynthia S. Hood

 January 2003 **International Journal of Network Management**, Volume 13 Issue 1

 Full text available: [pdf\(330.18 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Network access systems (NAS) such as digital loop carriers (DLC) are increasingly utilizing a

shared medium, such as Hybrid Fiber Coax (HFC) to provide point-to-multi-point access from the public switched telephone network (PSTN) to the end user (consumer). New services, such as direct access to the packet switched network (PSN, WWW) have been added to DLC equipment in such a way as to provide for a prioritized set of services over a shared medium in an effort to take advantage of otherwise unus ...

4 How fair is fair queuing

A. G. Greenberg, N. Madras

July 1992 **Journal of the ACM (JACM)**, Volume 39 Issue 3

Full text available:  pdf(1.88 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

5 An admission control scheme for predictable server response time for web accesses

Xiangping Chen, Prasant Mohapatra, Huamin Chen

April 2001 **Proceedings of the tenth international conference on World Wide Web**

Full text available:  pdf(259.81 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: Internet, PACERS, QoS, admission control, bounded response time, service differentiating Internet servers

6 QoS and congestion control: Quality-adaptive media streaming by priority drop

Charles Krasic, Jonathan Walpole, Wu-chi Feng

June 2003 **Proceedings of the 13th international workshop on Network and operating systems support for digital audio and video**

Full text available:  pdf(395.62 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper presents a general design strategy for streaming media applications in best effort computing and networking environments. Our target application is video on demand using personal computers and the Internet. In this scenario, where resource reservations and admission control mechanisms are not generally available, effective streaming must be able to adapt in a responsive and graceful manner. The design strategy we propose is based on a single simple idea, priority data dropping, or ...

Keywords: internet, priority mapping, quality adaptive streaming

7 Design, implementation, and performance measurement of a native-mode ATM transport layer (extended version)

R. Ahuja, S. Keshav, H. Saran

August 1996 **IEEE/ACM Transactions on Networking (TON)**, Volume 4 Issue 4

Full text available:  pdf(1.66 MB) Additional Information: [full citation](#), [references](#), [index terms](#)

Keywords: AAL 5, asynchronous transfer mode, native-mode ATM, personal computer, transport layer

- 8 **Proportional differentiated services: delay differentiation and packet scheduling** 
Constantinos Dovrolis, Dimitrios Stiliadis, Parameswaran Ramanathan
August 1999 **ACM SIGCOMM Computer Communication Review , Proceedings of the conference on Applications, technologies, architectures, and protocols for computer communication**, Volume 29 Issue 4

Full text available:  pdf(1.51 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Internet applications and users have very diverse service expectations, making the current *same-service-to-all* model inadequate and limiting. In the *relative differentiated services* approach, the network traffic is grouped in a small number of *service classes which are ordered based on their packet forwarding quality*, in terms of per-hop metrics for the queueing delays and packet losses. The users and applications, in this context, can *adaptively choose the class that ...*

- 9 **A comparative study of arbitration algorithms for the Alpha 21364 pipelined router** 
Shubhendu S. Mukherjee, Federico Silla, Peter Bannon, Joel Emer, Steve Lang, David Webb
October 2002 **Tenth international conference on architectural support for programming languages and operating systems on Proceedings of the 10th international conference on architectural support for programming languages and operating systems (ASPLOS-X)**, Volume 30 , 36 , 37 Issue 5 , 5 , 10

Full text available:  pdf(1.44 MB)

Additional Information: [full citation](#), [abstract](#), [references](#)

Interconnection networks usually consist of a fabric of interconnected routers, which receive packets arriving at their input ports and forward them to appropriate output ports. Unfortunately, network packets moving through these routers are often delayed due to conflicting demand for resources, such as output ports or buffer space. Hence, routers typically employ *arbiters* that resolve conflicting resource demands to maximize the number of matches between packets waiting at input ports an ...

- 10 **A low-complexity issue logic** 
Ramon Canal, Antonio González
May 2000 **Proceedings of the 14th international conference on Supercomputing**

Full text available:  pdf(995.88 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

One of the main concerns in today's processor design is the issue logic. Instruction-level parallelism is usually favored by an out-of-order issue mechanism where instructions can issue independently of the program order. The out-of-order scheme yields the best performance but at the same time introduces important hardware costs such as an associative look-up, which might be prohibitive for wide issue processors with large instruction windows. This associative search may slow-down t ...

Keywords: in-order issue, instruction issue logic, out-of-order issue, wide-issue superscalar

11 Session 9: *f*-arrays: implementation and applications

Prasad Jayanti

July 2002 **Proceedings of the twenty-first annual symposium on Principles of distributed computing**

Full text available: [pdf\(1.04 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

We introduce *f*-array, a new type of shared object that generalizes the multiwriter snapshot object, and design efficient (linearizable and wait-free) algorithms for implementing it. *f*-arrays have made possible improved solutions to some important problems, as listed below:

- A wait-free implementation of multiwriter snapshot, where the time complexity of *scan* and *update* operations is independent of the number of processes accessing the implementation.
- A wait ...

12 End-to-end congestion control for the internet: delays and stability

Ramesh Johari, David Kim Hong Tan

December 2001 **IEEE/ACM Transactions on Networking (TON)**, Volume 9 Issue 6

Full text available: [pdf\(333.72 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Under the assumption that queueing delays will eventually become small relative to propagation delays, we derive stability results for a fluid flow model of end-to-end Internet congestion control. The theoretical results of the paper are intended to be decentralized and locally implemented: each end system needs knowledge only of its own round-trip delay. Criteria for local stability and rate of convergence are completely characterized for a single resource, single user system. Stability criteri ...

Keywords: Delayed systems, distributed systems, end-to-end congestion control

13 StarT-Voyager: a flexible platform for exploring scalable SMP issues

Boon S. Ang, Derek Chiou, Daniel L. Rosenband, Mike Ehrlich, Larry Rudolph, Arvind

November 1998 **Proceedings of the 1998 ACM/IEEE conference on Supercomputing (CDROM)**

Full text available: [html\(49.51 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

This paper describes StarT-Voyager, a machine designed as an experimental platform for research in cluster system communication. The heart of StarT-Voyager is a network interface unit (NIU) that connects the memory bus of a PowerPC-based SMP to the MIT Arctic network. The NIU is highly flexible, with its set of functions easily modified by firmware or by programmable hardware, making it possible to compare different communication interfaces and implementation strategies on a common platform. Its ...

Keywords: configurable hardware, flexible, message passing, network interface unit, parallel systems, shared memory

14 Hardware support for distributed objects in a hypercube

J. L. Kozarek

January 1988 **Proceedings of the third conference on Hypercube concurrent computers and applications: Architecture, software, computer systems, and general issues - Volume 1**Full text available:  pdf(813.20 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

A survey of parallel programs written for an experimental hypercube indicates that while systolic dataflow programs map well to a hypercube, general purpose programs with random dataflow are seriously constrained by the cost of communication. This paper proposes the augmentation of the hypercube architecture with a special-purpose communications coprocessor that provides hardware support for distributed objects. We anticipate this will increase the efficiency of inter-process commun ...

15 Handoff and optimal channel assignment in wireless networks

Novella Bartolini

November 2001 **Mobile Networks and Applications**, Volume 6 Issue 6Full text available:  pdf(311.33 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this paper, a non-preemptive prioritization scheme for access control in cellular networks is analyzed. Two kinds of users are assumed to compete for the access to the limited number of frequency channels available in each cell: the high priority users represent handoff requests, while the low priority users correspond to initial access requests originated within the same cell. Queueing of handoff requests is also considered. The research for the best access policy is carried out by means of ...

Keywords: Markov decision process, cellular networks, cutoff priority policy, handoff call, hysteresis policy, initial access request, optimal access control, randomized policies, threshold priority policy

16 The use of service limits for efficient operation of multistation single-medium communication systems

Sem C. Borst, Onno J. Boxma, Hanoch Levy

October 1995 **IEEE/ACM Transactions on Networking (TON)**, Volume 3 Issue 5Full text available:  pdf(1.28 MB) Additional Information: [full citation](#), [references](#), [index terms](#)**17 Efficient use of memory bandwidth to improve network processor throughput**

Jahangir Hasan, Satish Chandra, T. N. Vijaykumar

May 2003 **ACM SIGARCH Computer Architecture News , Proceedings of the 30th annual international symposium on Computer architecture**, Volume 31 Issue 2Full text available:  pdf(184.83 KB) Additional Information: [full citation](#), [abstract](#), [references](#)

We consider the efficiency of packet buffers used in packet switches built using network processors (NPs). Packet buffers are typically implemented using DRAM, which provides plentiful buffering at a reasonable cost. The problem we address is that a typical NP workload may be unable to utilize the peak DRAM bandwidth. Since the bandwidth of the packet buffer is often the bottleneck in the performance of a shared-memory packet switch, inefficient use of available DRAM bandwidth further reduces th ...

18 Concurrency, latency, or system overhead: which has the largest impact on uniprocessor DRAM-system performance?

Vinodh Cuppu, Bruce Jacob

May 2001 **ACM SIGARCH Computer Architecture News , Proceedings of the 28th annual international symposium on Computer architecture**, Volume 29 Issue 2

Full text available:  [pdf\(904.17 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)
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Given a fixed CPU architecture and a fixed DRAM timing specification, there is still a large design space for a DRAM system organization. Parameters include the number of memory channels, the bandwidth of each channel, burst sizes, queue sizes and organizations, turnaround overhead, memory-controller page protocol, algorithms for assigning request priorities and scheduling requests dynamically, etc. In this design space, we see a wide variation in application execution times: for example, ...

19 Effects of Ada on design problems in a discrete event simulator

Philip E. Railsback, Louis C. Rose, Ann E. Corrigan

December 1990 **Proceedings of the conference on TRI-ADA '90**

Full text available:  [pdf\(1.37 MB\)](#) Additional Information: [full citation](#), [references](#)

20 QoS provisioning and tracking fluid policies in input queueing switches

Vahid Tabatabaei, Leonidas Georgiadis, Leandros Tassiulas

October 2001 **IEEE/ACM Transactions on Networking (TON)**, Volume 9 Issue 5

Full text available:  [pdf\(253.30 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The concept of tracking fluid policies by packetized policies is extended to input queueing switches. It is considered that the speedup of the switch is one. One of the interesting applications of the tracking policy in TDMA satellite switches is elaborated. For the special case of 2×2 switches, it is shown that a tracking nonanticipative policy always exists. It is found that, in general, nonanticipative policies do not exist for switches with more than two input and output ports. For t ...

Keywords: Input-queued switching, QoS provisioning, scheduling

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Pages:113 - 118

[Abstract] [\[PDF Full-Text \(560 KB\)\]](#) [IEEE JNL](#)

2 Task-Oriented Queueing: An Analysis Tool for Software Design of Communication Processing Systems*Daigle, J.;*

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